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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

In the Claims:

1.   (Currently Amended): A hierarchical clustered parallel processing system comprising:

a plurality of cluster nodes, each cluster node comprising at least one computer system cluster, each computer system cluster comprising at least one ~~of~~ computer processing system; ~~forming a node of a hierarchical cluster, each cluster of computer processing systems comprising:~~

~~a plurality of computer systems designated to be members of nodes of said cluster;~~

a physical network connected to allow ~~each~~ any of said computer processing systems incorporated within said plurality of cluster nodes ~~system of the plurality of computer systems to transfer data between any of the plurality~~ to communicate with any other of said computer processing systems within said cluster nodes and connected to allow communication between each cluster node;

a plurality of virtual networks, each virtual network comprising a plurality of said computer processing systems, wherein each computer processing

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17   system includes at least one neighbor's listing, each neighbor's listing

18   defining said computer processing system as a member of one of said

19   plurality of said virtual networks and virtually connected through a virtual

20   multicast bus to other member computer processing systems of said

21   virtual network to allow direct and shared communication with the member

22   processors; ~~a virtual multicast bus to designate communication between~~

23   ~~member computer systems;~~ and

24   a configuration service apparatus in communication with each of ~~the~~ said

25   computer processing systems to provide each of ~~the~~ said plurality of

26   computer processing systems with:

27   a neighbor's listing for each of said plurality of virtual networks that each of

28   said plurality of computer systems is a member computer system;

29   a node identification to identify ~~a node for~~ one cluster node that each

30   member computer processing system ~~within said cluster~~ is a member

31   computer processing system,

32   a multicast bus address to broadcast communications to said ~~members~~

33   member computer processing systems of said hierarchical cluster by

34   way of said virtual ~~cluster bus~~ networks to which said member

35   computer processing systems, and

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36   a cluster node priority list designating a priority for each cluster node

37   within said hierarchical cluster; and

38   a cluster supervising processor to provide operational control services for

39   each of said cluster nodes, said cluster supervising processor being

40   selected of said member computer processing systems of each of said

41   cluster nodes according to the priority from said priority list.

1   2. (Original): The hierarchical clustered parallel processing system of claim 1

2   wherein the configuration service apparatus further provides a disk access list.

1   3. (Original): The configuration service apparatus of claim 2 wherein the disk

2   access list comprises identification of accessible disks, disk mount points, and

3   failure detection locations.

1   4. (Currently Amended): The hierarchical clustered parallel processing system of

2   claim 1 wherein the cluster supervising processor maintains:

3   a cluster topology table detailing connectivity for each node computer

4   processing system of the cluster node and a disk access status for each

5   disk within said cluster node;

6   a disk usage table describing current capacity and loading for each disk within

7   said cluster node;

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8   a node usage table describing a streaming capacity for each ~~node~~ computer

9   processing system of said cluster and a current loading for each ~~node~~

10   computer processing system of said cluster; and

11   a cluster map describing network addresses for each of a plurality of servers

12   in communication with said cluster node and listing of ~~nodes~~ computer

13   processing systems within said cluster, network addresses for said ~~nodes~~

14   computer processing systems, and an operational status of said ~~nodes~~

15   computer processing systems.

1   5.   (Currently Amended): The hierarchical clustered parallel processing system of

2   claim 1 wherein a group of said member computer processing systems of said

3   cluster nodes are configured as a sub-cluster, said sub-cluster being a sub-node

4   of said ~~cluster~~ virtual network.

1   6.   (Currently Amended): The hierarchical clustered parallel processing system of

2   claim 4 wherein the each cluster node of computer processing systems further

3   comprises a fault detection apparatus within each member computer processing

4   system:

5   to periodically receive a first processor status message from a first adjacent

6   node;

7   to append a second processor status message of a current node to said first

8   processor status message; and

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9 to periodically transmit said first and second processor status message to a

10 second adjacent node.

1 7. (Currently Amended): The hierarchical clustered parallel processing system of

2 claim 6 wherein said cluster supervising processor receives an accumulation of

3 the processor status messages from all cluster nodes of said cluster.

1 8. (Original): The hierarchical clustered parallel processing system of claim 6

2 wherein, if the fault detection apparatus does not receive said first processor

3 status message for a number of periods, said first adjacent node is declared to

4 have failed and a failure declaration is appended to said second processor status

5 message.

1 9. (Currently Amended): The hierarchical clustered parallel processing system of

2 claim 8 wherein, upon receipt of said failure declaration, the cluster supervising

3 processor modifies said cluster map to reflect failure of the cluster node.

1 10. (Original): The hierarchical clustered parallel processing system of claim 4

2 wherein the cluster supervising processor periodically posts a supervisor

3 notification message on said virtual multicast bus, said supervisor notification

4 message comprises a node identification and a network address for said cluster

5 supervising processor.

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1   11.   (Original): The hierarchical clustered parallel processing system of claim 10

2   wherein the supervisor notification message further comprises the cluster

3   topology and a current cluster map.

1   12.   (Currently Amended): The hierarchical clustered parallel processing system of

2   claim 10 wherein, if one cluster node of cluster does not receive said supervisor

3   notification message within a notification time, said node becomes said cluster

4   supervising processor, updates said cluster topology table and said cluster map,

5   transmits a cluster supervising processor update message, and the supervisor

6   notification message.

1   13.   (Currently Amended): The hierarchical clustered parallel processing system of

2   claim 4 wherein:

3   each cluster node of said cluster periodically determines whether each disk to

4   which said cluster node has access is functioning and if any disk is not

5   functioning;

6   the cluster node creates a disk failure message for the disk not functioning for

7   transfer to an adjacent cluster node;

8   wherein said adjacent cluster node transfers said disk failure node message

9   to subsequent adjacent cluster nodes until said cluster supervising

10   processor receives said disk failure message;

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11   wherein upon receipt of multiple disk failure messages from multiple <u>cluster</u>

12   nodes for the disk not functioning, the cluster supervising processor

13   declares a disk failure, updates the disk usage table, and reassigns all the

14   transfer of ~~video~~ data files from a failing node to an active node.

1   14.   (Currently Amended): The hierarchical clustered parallel processing system of

2   claim 10 wherein a new cluster node joins said ~~cluster~~ <u>virtual network</u> by the

3   steps of:

4   listening to said virtual multicast bus for a supervisor notification message

5   from the present cluster supervising processor;

6   posting on said virtual multicast bus a join request message providing a node

7   identification, a network address for said node, and a disk access list for

8   said <u>cluster</u> node;

9   updating by the present cluster supervising processor the cluster map and the

10   cluster topology; and

11   placing a new supervisor notification message upon said virtual multicast bus

12   including said new <u>cluster</u> node.

1   15.   (Currently Amended): The hierarchical clustered parallel processing system of

2   claim 14 wherein the new <u>cluster</u> node joins said ~~cluster~~ <u>virtual network</u> further by

3   the step of:

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4   ceasing posting on said virtual multicast bus said join request message.

5   16.   (Currently Amended): The hierarchical clustered parallel processing system of

6   claim 14 wherein the new cluster node becomes the cluster supervising

7   processor, if said new cluster node has a priority that supercedes said present

8   cluster supervising processor.

1   17.   (Currently Amended): The hierarchical clustered parallel processing system of

2   claim 16 wherein the new cluster node acting as the present cluster supervising

3   processor transmits the supervisor notification message and the original cluster

4   supervising processor ceases transmitting said supervisor notification message.

1   18.   (Currently Amended): The hierarchical clustered parallel processing system of

2   claim 17 wherein if the new cluster node does not transmit the supervisor

3   notification message by the notification time, the original cluster supervising

4   processor resumes transmission of the supervisor notification message.

1   19.   (Currently Amended): The hierarchical clustered parallel processing system of

2   claim 10 wherein a-one cluster node leaves a cluster-one virtual network by the

3   steps of:

4   posting a leave message on said virtual multicast bus, said leave message

5   containing the node identification and the network address for said cluster

6   node;

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7   updating by the cluster supervising processor of the cluster map and the

8   cluster topology; and

9   posting on the virtual multicast bus the supervisor notification message with

10   the updated cluster map and cluster topology.

1   20.   (Currently Amended): The hierarchical clustered parallel processing system of

2   claim 19 wherein the node leaving the cluster virtual network ceases posting the

3   leave message upon receipt of the supervisor notification message with the

4   updated cluster map and cluster topology.

1   21.   (Currently Amended): The hierarchical clustered parallel processing system of

2   claim 19 wherein if the cluster node leaving the cluster virtual network is the

3   cluster supervising processor, the cluster node of the cluster of with the highest

4   priority on the priority list then becomes the cluster supervising processor.

1   22.   (Currently Amended): The hierarchical clustered parallel processing system of

2   claim 1 wherein said cluster virtual network is formed and said cluster

3   supervising processor is designated by the steps of:

4   listening to said virtual multicast bus for a supervisor notification message

5   from the cluster supervising processor by each cluster node of the virtual

6   networkcluster;

7   if no supervisor notification message is received, designating each cluster

8   node a single node virtual network cluster of its own;

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9   designating each cluster node the cluster supervising processor of its single

10   node cluster virtual network;

11   transmitting by each cluster supervising processor of each single node cluster

12   virtual network the supervisor notification message for each single node

13   cluster;

14   ceasing by those cluster nodes having a lower priority from transmitting

15   supervisor notification messages such that the cluster node with a highest

16   priority is the cluster supervising processor; and

17   joining said virtual network cluster by those nodes with lower priority by

18   posting on said virtual multicast bus a join request message providing a

19   node identification, a network address for said cluster node, and a disk

20   access list for said cluster node.

1   23.   (Currently Amended): A virtual network formed within a plurality of clusters

2   cluster of computer processing systems interconnected by a physical network to

3   allow each computer processing system of the clusters of computer processing

4   systems to transfer data between any of the plurality of computer processing

5   systems, said virtual network comprising:

6   a plurality of nodes, each node comprising at least one computer system

7   cluster systems designated to be members of nodes of said cluster a

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8   member of said virtual network, each computer system cluster comprising

9   at least one of said computer processing systems;

10   a physical network connected to allow each computer system of the plurality

11   of computer systems to transfer data between any of the plurality of

12   computer systems;

13   a virtual multicast bus to provide communication between member computer

14   systems nodes of said virtual network; and

15   a configuration service apparatus in communication with each of the

16   computer systems to provide each of the plurality of computer systems

17   with:

18   a neighbor's listing for each of said computer processing systems included

19   in a member node of said virtual network, a separate neighbor's listing

20   associated with any virtual network included within said a plurality of

21   clusters;

22   a node identification to identify a node for each member computer

23   processing system within said cluster,

24   a multicast bus address to broadcast communications to said members of

25   said cluster member nodes of said virtual network by way of said

26   virtual cluster multicast bus, and

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27   a node priority list designating a priority for each member node within said

28   ~~cluster~~ virtual network; and

29   a cluster supervising processor to provide operational control services for

30   each of said ~~cluster~~ member nodes, said cluster supervising processor

31   being selected of said ~~member~~ computer systems within said nodes

32   according to the priority from said priority list.

1   24.   (Currently Amended): The ~~cluster of computer processing systems~~ virtual

2   network of claim 23 wherein the configuration service apparatus further provides

3   a disk access list.

1   25.   (Currently Amended): The ~~configuration service apparatus~~ virtual network of

2   claim 24 wherein the disk access list comprises identification of accessible disks,

3   disk mount points, and failure detection locations.

1   26.   (Currently Amended): The ~~cluster of computer processing systems~~ virtual

2   network of claim 23 wherein the cluster supervising processor maintains:

3   a cluster topology table detailing connectivity for each node of the ~~cluster~~

4   virtual network and a disk access status for each disk within said ~~cluster~~

5   virtual network;

6   a disk usage table describing current capacity and loading for each disk within

7   said ~~cluster~~ virtual network;

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8   a node usage table describing a streaming capacity for each node of said

9   ~~cluster~~ virtual network and a current loading for each node of said ~~cluster~~

10   virtual network; and

11   a cluster map describing network addresses for each of a plurality of servers

12   in communication with said ~~cluster~~ virtual network and listing of nodes

13   within said ~~cluster~~ virtual network, network addresses for said nodes, and

14   an operational status of said nodes.

1   27.   (Currently Amended): The ~~cluster of computer processing systems~~ virtual

2   network of claim 23 wherein a group of said ~~member~~ computer systems of said

3   ~~cluster~~ plurality of clusters of computer processing systems are configured as a

4   sub-cluster, said sub-cluster being a node of said ~~cluster~~ virtual network.

1   28.   (Currently Amended): The ~~cluster of computer processing systems~~ virtual

2   network of claim 26 further comprising a fault detection apparatus within each

3   ~~member~~ computer processing system of said member nodes:

4   to periodically receive a first processor status message from a first adjacent

5   node ~~and transmit~~;

6   to append a second processor status message of a current node to said first

7   processor status message; and

8   to periodically transmit said first and second processor status message to a

9   second adjacent node.

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1   29.   (Currently Amended): The ~~cluster of computer processing systems~~ virtual

2   network of claim 28 wherein said cluster supervising processor receives an

3   accumulation of the processor status messages from all nodes of said ~~cluster~~

4   virtual network.

1   30.   (Currently Amended): The ~~cluster of computer processing systems~~ virtual

2   network of claim 28 wherein, if the fault detection apparatus does not receive

3   said first processor status message for a number of periods, said first adjacent

4   node is declared to have failed and a failure declaration is appended to said

5   second processor status message.

1   31.   (Currently Amended): The ~~cluster of computer processing systems~~ virtual

2   network of claim 30 wherein, upon receipt of said failure declaration, the cluster

3   supervising processor modifies said cluster map to reflect failure of the node.

1   32.   (Currently Amended): The ~~cluster of computer processing systems~~ virtual

2   network of claim 26 wherein the cluster supervising processor periodically posts

3   a supervisor notification message on said virtual multicast bus, said supervisor

4   notification message comprises a node identification and a network address for

5   said cluster supervising processor.

1   33.   (Currently Amended): The ~~cluster of computer processing systems~~ virtual

2   network of claim 32 wherein the supervisor notification message further

3   comprises the cluster topology and a current cluster map.

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1   34.   (Currently Amended): The ~~cluster of computer processing systems~~ virtual

2   network of claim 32 wherein, if one node of ~~cluster~~ said virtual network does not

3   receive said supervisor notification message within a notification time, said node

4   becomes said cluster supervising processor, updates said cluster topology table

5   and said cluster map, transmits a cluster supervising processor update message,

6   and the supervisor notification message.

1   35.   (Currently Amended): The ~~cluster of computer processing systems of~~ virtual

2   network claim 26 wherein:

3   each node of said ~~cluster~~ virtual network periodically determines whether

4   each disk to which said node has access is functioning and if any disk is

5   not functioning;

6   the node creates a disk failure message for the disk not functioning for

7   transfer to an adjacent node;

8   wherein said adjacent node transfers said disk failure node to subsequent

9   adjacent nodes until said cluster supervising processor receives said disk

10   failure message;

11   wherein upon receipt of multiple disk failure messages from multiple nodes for

12   the disk not functioning, the cluster supervising processor declares a disk

13   failure, updates the disk usage table, and reassigns all the transfer of

14   ~~video~~ data files from a failing node to an active node.

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1   36.   (Currently Amended): The ~~cluster of computer processing systems~~ virtual

2   network of claim 32 wherein a new node joins said ~~cluster~~ virtual network by the

3   steps of:

4   listening to said virtual multicast bus for a supervisor notification message

5   from the present cluster supervising processor;

6   posting on said virtual multicast bus a join request message providing a node

7   identification, a network address for said node, and a disk access list for

8   said node;

9   updating by the present cluster supervising processor the cluster map and the

10   cluster topology; and

11   placing a new supervisor notification message upon said virtual multicast bus

12   including said new node.

13   37.   (Currently Amended): The ~~cluster of computer processing systems~~ virtual

14   network of claim 36 wherein the new node joins said ~~cluster~~ virtual network

15   further by the steps of:

16   ceasing posting on said virtual multicast bus said join request message.

17   38.   (Currently Amended): The ~~cluster of computer processing systems~~ virtual

18   network of claim 36 wherein the new node becomes the cluster supervising

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19   processor, if said new node has a priority that supercedes said present cluster

20   supervising processor.

1   39.   (Currently Amended): The ~~cluster of computer processing systems~~ virtual

2   network of claim 38 wherein the new node acting as the present cluster

3   supervising processor transmits the supervisor notification message and the

4   original cluster supervising processor ceases transmitting said supervisor

5   notification message.

1   40.   (Currently Amended): The ~~cluster of computer processing systems~~ virtual

2   network of claim 39 wherein if the new node does not transmit the supervisor

3   notification message by the notification time, the original cluster supervising

4   processor resumes transmission of the supervisor notification message.

1   41.   (Currently Amended): The ~~cluster of computer processing systems~~ virtual

2   network of claim 32 wherein a node leaves ~~a cluster~~ said virtual network by the

3   steps of:

4   posting a leave message on said virtual multicast bus, said leave message

5   containing the node identification and the network address for said node;

6   updating by the cluster supervising processor of the cluster map and the

7   cluster topology; and

8   posting on the virtual multicast bus the supervisor notification message with

9   the updated cluster map and cluster topology.

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1   42.   (Currently Amended): The ~~cluster of computer processing systems~~ virtual

2   network of claim 41 wherein the node leaving the ~~cluster~~ virtual network ceases

3   posting the leave message upon receipt of the supervisor notification message

4   with the updated cluster map and cluster topology.

1   43.   (Currently Amended): The ~~cluster of computer processing systems~~ virtual

2   network of claim 41 wherein if the node leaving ~~the cluster~~ said virtual network is

3   the cluster supervising processor, the node ~~of the cluster of~~ with the highest

4   priority listed the priority list then becomes the cluster supervising processor.

1   44.   (Currently Amended): The ~~cluster of computer processing systems~~ virtual

2   network of claim 23 wherein said ~~cluster~~ virtual network is formed and said

3   cluster supervising processor is designated by the steps of:

4   listening to said virtual multicast bus for a supervisor notification

5   message from the cluster supervising processor by each node of

6   the cluster;

7   if no supervisor notification message is received, designating each

8   node a single node ~~cluster~~ virtual network of its own;

9   designating each node the ~~cluster~~ virtual network supervising

10   processor of its single node cluster;

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11   transmitting by each cluster supervising processor of each single node

12   ~~cluster~~ virtual network the supervisor notification message for each

13   . single node cluster;

14   ceasing by those nodes having a lower priority from transmitting

15   supervisor notification messages such that the node with a highest

16   priority is the ~~cluster~~ virtual network supervising processor; and

17   joining said virtual network ~~cluster~~ by those nodes with lower priority by

18   posting on said virtual multicast bus a join request message

19   providing a node identification, a network address for said node,

20   and a disk access list for said node.

1   45.   (New): A method for forming a virtual network within a plurality of clusters of

2   computer processing systems interconnected by a physical network to allow

3   each computer processing system of the clusters of computer processing

4   systems to transfer data. between any of the plurality of computer systems, said

5   method for forming said virtual network comprising steps of:

6   creating a plurality of nodes such that each node comprises at least one

7   computer system cluster designated to be a member of said virtual

8   network, each computer system cluster comprising at least one of said

9   computer processing systems;

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10   providing communication between member nodes of said virtual network

11   through a virtual multicast bus; and

12   establishing a configuration service apparatus communicating with each of

13   said computer systems;

14   transferring from said configuration service apparatus to each of the plurality

15   of computer processing systems:

16   a neighbor's listing for each of said computer processing systems

17   included in a member node of said virtual network, a separate

18   neighbor's listing associated with any virtual network included

19   within said a plurality of clusters;

20   a node identification to identify a node for each member computer

21   processing system within said cluster,

22   a multicast bus address to broadcast communications to said member

23   nodes of said virtual network by way of said virtual multicast bus,

24   and

25   a node priority list designating a priority for each member node within

26   said virtual network; and

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27   selecting one of said computer systems within said nodes according to the

28   priority from said priority list to be a cluster supervising processor to

29   provide operational control services for each of said member nodes.

1   46.   (New): The method for forming said virtual network of claim 45 wherein

2   transferring from said configuration service apparatus to each of the plurality of

3   computer systems a disk access list.

1   47.   (New): The method for forming said virtual network of claim 46 wherein the disk

2   access list comprises identification of accessible disks, disk mount points, and

3   failure detection locations.

1   48.   (New): The method for forming said virtual network of claim 45 further comprising

2   the step of maintaining by said cluster supervising processor:

3   a cluster topology table detailing connectivity for each node of the virtual

4   network and a disk access status for each disk within said virtual network;

5   a disk usage table describing current capacity and loading for each disk within

6   said virtual network;

7   a node usage table describing a streaming capacity for each node of said

8   virtual network and a current loading for each node of said virtual network;

9   and

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10   a cluster map describing network addresses for each of a plurality of servers

11   in communication with said virtual network and listing of nodes within said

12   virtual network, network addresses for said nodes, and an operational

13   status of said nodes.

1   49.   (New): The method for forming said virtual network of claim 45 wherein creating

2   a plurality of nodes comprises the steps of:

3   configuring a group of said computer systems of said plurality of clusters of

4   computer processing systems are as a sub-cluster; and

5   creating one node of said virtual network from said sub-cluster.

1   50.   (New): The method for forming said virtual network of claim 48 further comprising

2   the step of:

3   detecting faults within each computer processing system of said member

4   nodes by the steps of:

5   periodically receiving a first processor status message from a first

6   adjacent node and transmit;

7   appending a second processor status message of a current node to

8   said first processor status message; and

9   periodically transmitting said first and second processor status

10   message to a second adjacent node.

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51. (New): The method for forming said virtual network of claim 50 wherein detecting faults within each computer processing system further comprises the step of receiving an accumulation of the processor status messages from all nodes of said virtual network.

52. (New): The method for forming said virtual network of claim 50 wherein, detecting faults within each computer processing system further comprises the step of:

declaring said first adjacent node to have failed, if said first processor status message for a number of periods is not received;

appending a failure declaration to said second processor status message.

53. (New): The method for forming said virtual network of claim 52 wherein detecting faults within each computer processing system further comprising the step of modifying said cluster map to reflect failure of the node, upon receipt of said failure declaration.

54. (New): The method for forming said virtual network of claim 48 wherein maintaining by said cluster supervising processor comprises the step of posting a supervisor notification message on said virtual multicast bus, said supervisor notification message comprises a node identification and a network address for a cluster supervising processor.

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55. (New): The method for forming said virtual network of claim 54 wherein the supervisor notification message further comprises the cluster topology and a current cluster map.

56. (New): The method for forming said virtual network of claim 54 wherein maintaining by said cluster supervising processor further comprises the steps of:

   becoming said cluster supervising processor by one node of said virtual network if said one node does not receive said supervisor notification message within a notification time;

   updating by said one node said cluster topology table and said cluster map; and

   transmitting by said one a cluster supervising processor update message, and the supervisor notification message.

57. (New): The virtual network claim 48 wherein maintaining by said cluster supervising processor comprises the steps of:

   periodically determining by each node of said virtual network whether each disk to which said node has access is functioning and if any disk is not functioning;

   creating by said node a disk failure message for the disk not functioning for transfer to an adjacent node;

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8   transferring by said adjacent node said disk failure node to subsequent

9   adjacent nodes until said cluster supervising processor receives said disk

10   failure message;

11   declaring by said cluster supervising processor a disk failure, updating the

12   disk usage table, and reassigning all the transfer of data files from a failing

13   node to an active node, upon receipt of multiple disk failure messages

14   from multiple nodes for the disk not functioning.

1   58.   (New): The method for forming said virtual network of claim 54 further comprising

2   the step of joining a new node to said virtual network by the steps of:

3   listening to said virtual multicast bus for a supervisor notification message

4   from the present cluster supervising processor;

5   posting on said virtual multicast bus a join request message providing a node

6   identification, a network address for said node, and a disk access list for

7   said node;

8   updating by the present cluster supervising processor the cluster map and the

9   cluster topology; and

10   placing a new supervisor notification message upon said virtual multicast bus

11   including said new node.

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12 59.   (New): The method for forming said virtual network of claim 58 wherein joining a

13   new node to said virtual network further by the step of:

14   ceasing posting on said virtual multicast bus said join request message.

15 60.   (New): The method for forming said virtual network of claim 58 wherein joining a

16   new node to said virtual network further comprises the step of establishing said

17   new node as the cluster supervising processor, if said new node has a priority

18   that supercedes said present cluster supervising processor.

1   61.   (New): The method for forming said virtual network of claim 60 wherein

2   establishing said new node as the cluster supervising processor comprises the

3   steps of transmitting by said present cluster supervising processor said

4   supervisor notification message and ceasing transmitting by said original cluster

5   supervising processor said supervisor notification message.

1   62.   (New): The method for forming said virtual network of claim 61 wherein

2   establishing said new node as the cluster supervising processor further

3   comprises the step of resuming transmission of the supervisor notification

4   message by the original cluster supervising processor, if said new node does not

5   transmit the supervisor notification message by said notification time.

1   63.   (New): The method for forming said virtual network of claim 54 wherein further

2   comprising the step of leaving said virtual network by one node by the steps of:

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3   posting a leave message on said virtual multicast bus, said leave message

4   containing the node identification and the network address for said node;

5   updating by the cluster supervising processor of the cluster map and the

6   cluster topology; and

7   posting on the virtual multicast bus the supervisor notification message with

8   the updated cluster map and cluster topology.

1   64.   (New): The method for forming said virtual network of claim 63 wherein leaving

2   said virtual network by a node further comprises the step of ceasing posting the

3   leave message upon receipt of the supervisor notification message with the

4   updated cluster map and cluster topology by the node leaving the virtual network.

1   65.   (New): The method for forming said virtual network of claim 63 wherein leaving

2   said virtual network by a node further comprises the step of establishing the

3   cluster supervising processor as the node with the highest priority listed the

4   priority list, if the node leaving said virtual network is the cluster supervising

5   processor.

1   66.   (New): The method for forming said virtual network of claim 45 wherein

2   forming said virtual network and selecting one of said computer systems

3   within said nodes to be said cluster supervising processor further

4   comprise the steps of:

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5   listening to said virtual multicast bus for a supervisor notification

6   message from the cluster supervising processor by each node of

7   the cluster;

8   if no supervisor notification message is received, designating each

9   node a single node virtual network of its own;

10   designating each node the virtual network supervising processor of its

11   single node cluster;

12   transmitting by each cluster supervising processor of each single node

13   virtual network the supervisor notification message for each single

14   node cluster;

15   ceasing by those nodes having a lower priority from transmitting

16   supervisor notification messages such that the node with a highest

17   priority is the virtual network supervising processor; and

18   joining said virtual network by those nodes with lower priority by

19   posting on said virtual multicast bus a join request message

20   providing a node identification, a network address for said node,

21   and a disk access list for said node.